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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,283	06/28/2002	Norman Arnold Turnquist	121251	4427

6147 7590 05/20/2003

GENERAL ELECTRIC COMPANY  
GLOBAL RESEARCH CENTER  
PATENT DOCKET RM. 4A59  
PO BOX 8, BLDG. K-1 ROSS  
NISKAYUNA, NY 12309

EXAMINER

PATEL, VISHAL A

ART UNIT

PAPER NUMBER

3676

DATE MAILED: 05/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/064,283

Applicant(s)

TURNQUIST ET AL.

Examiner

Vishal Patel

Art Unit

3676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement (IDS) submitted on 7/3/02 is being considered by the examiner.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Basu et al (US. 5,884,918).

Basu et al discloses a turbine having a brush seal, an energy source of the steam turbine is selected from the group consisting essentially of nuclear plants, fossil-fuel plants and combined cycle plants (inherent uses of a turbine source), the brush seal is used to reduce leakage of a working fluid, the brush seal comprising:

a bristle holder (72 and 74) attachable to the steam turbine;

a plurality of bristles coupled to the bristle holder, the plurality of bristles comprising Ni, Cr and etc (bristles formed of nickel alloy, Haynes 25 or Haynes 214);

the operating temperature of the section is in the range between about 100 degrees and about 500 degrees F (intended use environment, well know in the art that turbine operate at this temperature range);

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the operating pressure of the section is up to about 160 psia (intended use environment, well known in the art that the turbine operate at high pressure);

a stator disposed in the steam turbine (turbine housing is the stator);

a rotor (28) spaced apart from the stator so as to define a gap therebetween; and

a brush seal disposed in a section of the steam turbine.

Basu discloses the claimed invention except for that the bristles are made of about 16% Cr, about 16% Mo, about 5% Fe, about 4% W, less than about 2.5% Co, about 1% Mn, about 0.35% V, about 0.08% Si, about 0.01 % C, and remainder of Ni (meaning the bristle are formed from Hastelloy manufactured by Haynes). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the bristle be made of Hastelloy C-276), since it has been held to be within the general skill of a worker in the art to select a know material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

4. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Basu in view of Modell et al (US. 5,252,224).

Basu disclose the invention substantially as claimed above but fail to disclose that the bristles are made of about 16% Cr, about 16% Mo, about 5% Fe, about 4% W, less than about 2.5% Co, about 1% Mn, about 0.35% V, about 0.08% Si, about 0.01 % C, and remainder of Ni (meaning the bristle are formed from Hastelloy manufactured by Haynes). Modell et al discloses a brush seal having bristle (brush 122 having bristles) and the bristle are made of Inconel 625 (nickel alloy) or Hastelloy C-276 or stainless steel (column 14, lines 40-45). It would have been obvious to one having ordinary skill in the art at the time the invention was made to configure

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the bristle of Basu to have that the bristles are made of about 16% Cr, about 16% Mo, about 5% Fe, about 4% W, less than about 2.5% Co, about 1% Mn, about 0.35% V, about 0.08% Si, about 0.01 % C, and remainder of Ni (meaning the bristle are formed from Hastelloy manufactured by Haynes) as taught by Modell, since having one nickel or another nickel alloy for bristle is considered to be art equivalent.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dinc et al discloses brush seal having bristle made of nickel alloy, Flower, Bridges, Moore teaches bristle to be formed by Inconel or Hastelloy, JP 2002089724 A and JP403125081A1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vishal Patel whose telephone number is (703) 308-8495. The examiner can normally be reached on Monday through Friday from 7:30 PM to 4:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight, can be reached on (703) 309-3179.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2168. Technology Center 3600 Customer Service is available at 703-308-1113. General Customer Service numbers are at 800-786-9199 or 703-308-9000. Fax Customer Service is available at 703-872-9325.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:** 703-872-9326, for formal communications for entry before Final action: or,  
703-872-9327, for formal communications for entry after Final action.

**For informal or draft communications, please label "PROPOSED" or "DRAFT" and fax to:**  
703-746-3814.

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Hand-delivered responses should be brought to Crystal Park Five, 2451 Crystal Drive, Arlington, Virginia, Seventh Floor (Receptionist suite adjacent to the elevator lobby).

VP

May 12, 2003

A handwritten signature in black ink, appearing to read 'Anthony Knight', is written over the printed name.

Anthony Knight  
Supervisory Patent Examiner  
Tech. Center 3600